Practice: 340 - Cover Crop

Scenario: #1 - Single Species

Scenario Description: Establish a small grain, grass, or brassica (including forage sorghum, radishes, turnips, buckwheat, etc) cover crop by broadcasting, no-till drill, or other approved methods. Cover crop is established during spring, summer,or fall and terminated according to state specifications. Termination can be either mechanical or chemical.

Before Situation: Row crops such as corn, vegetables or tobacco are harvested resulting in bare soil being exposed to wind erosion and/or intense rainfall during the fall, winter, and early spring. Residual soil nitrogen is lost through leaching, and phosphorus is tranported to nearby surface water resulting in decreased soil and water quality. Soil health (soil organic matter) declines over time as a result of tillage practices, low residue crops, and long periods of bare soil.

After Situation: Cover crop is seeded after row crop harvest and soil is covered. Erosion from wind and water is minimized. Residual nitrogen is captured by the cover crop, phosphorus transport is reduced, and water quality is improved. Soil health (including organic matter) is improved. Cover crop is terminated according to state specifications. Termination can be either mechanical or chemical.

Scenario Feature Measure: Acres of cover crop

Scenario Unit: Acre

Scenario Typical Size: 20

Total Scenario Cost: $1,779.10

Scenario Cost/Unit: $88.96

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
Equipment Installation						
Mechanical weed control, Vegetation termination	957	Mechanical operations, Includes: Roller/crimper, mower, shredder, etc. Includes equipment, power unit and labor costs.	Acre	$20.49	20	$409.88
Seeding Operation, Broadcast, Ground	959	Broadcast seed via ground operation. May require post tillage operation to incorporate seed. Includes equipment, power unit and labor costs.	Acre	$12.60	20	$251.96
Tillage, Primary	946	Includes heavy disking (offset) or chisel plow. Includes equipment, power unit and labor costs.	Acre	$16.57	20	$331.38
Materials						
One Species, Cool Season, Annual Grass or Legume	2311	Cool season annual grass or legume. Includes material and shipping only.	Acre	$39.29	20	$785.88

Practice: 340 - Cover Crop

Scenario: #4 - Organic Legume - Soil Health

Scenario Description: Establish a certified organic, pure legume cover crop or a multi-species soil health mix (typically a legume with 2-4 other small grain, grass or legume species) on organic or transitioning to organic land by broadcasting, no-till drill, or other approved methods. The scenario is typically used to improve soil organic matter, nitrogen, microbial populations and overall soil health. Cover crop is established during spring, summer,or fall and terminated according to state specifications. Must use certified organic seed.

Before Situation: Row crops such as corn, vegetables or tobacco are harvested from organic or transitioning to organic land resulting in bare soil being exposed to wind erosion and/or intense rainfall during the fall, winter, and early spring. Residual soil nitrogen is lost through leaching, and phosphorus is tranported to nearby surface water resulting in decreased soil and water quality. Soil health (soil organic matter) declines over time as a result of tillage practices, low residue crops, and long periods of bare soil.

After Situation: Certified organic legume cover crop or multi-species soil health mix is seeded after row crop harvest and soil is covered. Erosion from wind and water is minimized. Residual nitrogen is captured by the cover crop, phosphorus transport is reduced, and water quality is improved. Soil health (including organic matter), soil structure, and microbial diversity is improved. Cover crop is terminated according to state specifications.

Scenario Feature Measure: Acres of cover crop

Scenario Unit: Acre

Scenario Typical Size: 10

Total Scenario Cost: $1,328.71

Scenario Cost/Unit: $132.87

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
Equipment Installation						
Mechanical weed control, Vegetation termination	957	Mechanical operations, Includes: Roller/crimper, mower, shredder, etc. Includes equipment, power unit and labor costs.	Acre	$20.49	10	$204.94
Seeding Operation, Broadcast, Ground	959	Broadcast seed via ground operation. May require post tillage operation to incorporate seed. Includes equipment, power unit and labor costs.	Acre	$12.60	10	$125.98
Tillage, Primary	946	Includes heavy disking (offset) or chisel plow. Includes equipment, power unit and labor costs.	Acre	$16.57	10	$165.69
Materials						
Certified Organic, Three plus Species Mix, Cool Season, Annual Grasses and Legumes	2343	Certified organic cool season annual grass and legume mix. Includes material and shipping only.	Acre	$83.21	10	$832.10

Practice: 340 - Cover Crop

Scenario: #5 - Interseed

Scenario Description: Used to interseed, undersow, or overseed a cover crop into an existing crop. Can also be used as nurse crop or for other state approved purposes. Typically used to seed clover into a row crop, vegetables, or an orchard or vineyard alley, but can be used for a variety of cover crops and situations. Follow state specifications for interseeding crops, rates, and dates. Assumes seed and seeding costs only, and does not include termination costs. Assumes cover crop is terminated by already planned operations such as spring tillage, mowing alleys, grazing etc...

Before Situation: Cash crops have been planted but are not harvested. There is bare soil between the rows and intense rainfall during the fall, winter, and early spring will cause erosion after the cash crop is harvested. Residual soil nitrogen will be lost through leaching, and phosphorus will be tranported to nearby surface water resulting in decreased soil and water quality. Soil health (soil organic matter) is declining over time as a result of tillage practices, low residue crops, and long periods of bare soil.

After Situation: Approved cover crops are seeded into standing cash crop and soil is covered. Erosion from wind and water is minimized. Residual nitrogen is captured by the cover crop, phosphorus transport is reduced, and water quality is improved. Soil health (including organic matter), soil structure, and microbial diversity is improved. Energy is saved through the use of legume nitrogen versus Haber-Bosch nitrogen.

Scenario Feature Measure: Acres of cover crop

Scenario Unit: Acre

Scenario Typical Size: 10

Total Scenario Cost: $518.92

Scenario Cost/Unit: $51.89

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
Equipment Installation						
Seeding Operation, Broadcast, Ground	959	Broadcast seed via ground operation. May require post tillage operation to incorporate seed. Includes equipment, power unit and labor costs.	Acre	$12.60	10	$125.98
Materials						
One Species, Cool Season, Annual Grass or Legume	2311	Cool season annual grass or legume. Includes material and shipping only.	Acre	$39.29	10	$392.94

Practice: 340 - Cover Crop

Scenario: #6 - Soil Health 5 species

Scenario Description: Establish a multi-species soil health mix (typically a legume with 2-4 other small grain, grass or legume species) by broadcasting, no-till drill, or other approved methods. The scenario is typically used to improve soil organic matter, nitrogen, microbial populations and overall soil health. Cover crop is established during spring, summer,or fall and terminated according to state specifications. Termination can be either mechanical or chemical.

Before Situation: Row crops such as corn, vegetables or tobacco are harvested resulting in bare soil being exposed to wind erosion and/or intense rainfall during the fall, winter, and early spring. Residual soil nitrogen is lost through leaching, and phosphorus is tranported to nearby surface water resulting in decreased soil and water quality. Soil health (soil organic matter) declines over time as a result of tillage practices, low residue crops, and long periods of bare soil.

After Situation: Multi-species soil health mix is seeded after row crop harvest and soil is covered. Erosion from wind and water is minimized. Residual nitrogen is captured by the cover crop, phosphorus transport is reduced, and water quality is improved. Soil health (including organic matter), soil structure, and microbial diversity is improved. Cover crop is terminated according to state specifications. Termination can be either mechanical or chemical.

Scenario Feature Measure: Acres of cover crop

Scenario Unit: Acre

Scenario Typical Size: 10

Total Scenario Cost: $1,097.42

Scenario Cost/Unit: $109.74

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
Equipment Installation						
Mechanical weed control, Vegetation termination	957	Mechanical operations, Includes: Roller/crimper, mower, shredder, etc. Includes equipment, power unit and labor costs.	Acre	$20.49	10	$204.94
Seeding Operation, Broadcast, Ground	959	Broadcast seed via ground operation. May require post tillage operation to incorporate seed. Includes equipment, power unit and labor costs.	Acre	$12.60	10	$125.98
Tillage, Primary	946	Includes heavy disking (offset) or chisel plow. Includes equipment, power unit and labor costs.	Acre	$16.57	10	$165.69
Materials						
Five Species Mix, Cool Season, Annual Grasses and Legumes	2320	Cool season, introduced grass and legume mix. Includes material and shipping only.	Acre	$60.08	10	$600.81

Practice: 340 - Cover Crop

Scenario: #7 - Cover Crop Adaptive Mgt

Scenario Description: The practice scenario is for the implementation of cover crops in small replicated plots to allow the producer to learn how to manage cover crops on their operation. Scenario includes implementing replicated strip trials on a field plot to evaluate, identify and implement a particular cover crop management strategy (e.g., cover crop vs no cover crop, multiple species vs, single specie, evaluate different termination methods or timings, using a legume vs no legume for nitrogen credits). This will be done following the interim guidance for cover crop adaptive management to be issued to all field offices.

Before Situation: Row crops such as corn, soybeans, or cotton are grown and harvested in mid-late fall. Fields are disked immediately following harvest, with rows in some fields being hipped for drainage. Residue amounts after harvest average 30% or less, resulting in bare soil being exposed to wind erosion and/or intense rainfall during the fall, winter, and early spring. Over the winter residue degrades and sediment/nutrient runoff from fields increases. Sheet and rill erosion occurs with visible rills by spring. Runoff from the fields flows into streams, water courses or other water bodies causing degradation to the receiving waters. Soil health (soil organic matter) declines over time as a result of tillage practices, low residue crops, and long periods of bare soil. The producer is considering the use of cover crops but is unsure how to manage on their unique operation or is seeking a way to better manage cover crops in the operation.

After Situation: Installation of this scenario will result in establishment of a cover crop replicated plots to compare to different management strategies for cover crop management following the guidance in the Agronomy Technical Note 11 - Adaptive Management and the Interim Guidance for Cover Crop Adaptive Management to be issued to all field offices for FY15. Implementation involves establishing the replicated plots to evaluate one or more cover crop management strategies. The plot will consist of at least 4 replicated plots designed, laid out, managed and evaluated with the assistance of a consultant knowledgeable in cover crop management. Results are used to make cover crop management decisions to address erosion and water quality issues. Yields will be measured and statistically summarized following the procedures in Agronomy Technical Note 11 - Adaptive Management. The yields for each plot will be adjusted to the appropriate moisture content. This would be repeated for 3 years.

Scenario Feature Measure: Area planted

Scenario Unit: Acre

Scenario Typical Size: 10

Total Scenario Cost: $5,045.39

Scenario Cost/Unit: $504.54

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$26.15	30	$784.56
Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	$108.54	30	$3,256.32
Materials						
Five Species Mix, Cool Season, Annual Grasses and Legumes	2320	Cool season, introduced grass and legume mix. Includes material and shipping only.	Acre	$60.08	5	$300.41
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	$15.93	10	$159.26
Two Species Mix, Cool Season Annual (1 grass and 1 legume)	2314	Cool season annual grass and legume mix. Includes material and shipping only.	Acre	$54.10	5	$270.52
Equipment Installation						
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$6.12	10	$61.21
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	$21.31	10	$213.11